Table 3: Causes of Viral Hepatitis During Pregnancy

Virus	Main route of transmission	Vertical transmission	Clinical features during pregnancy	Maximal risk of foetal/neonatal infection	Treatment for mother and foetus to protect neonate
Hepatitis A	Faecal/oral	Rare	• Acute • Self-limiting	Around delivery	*Neonatal:* • Immunoglobulin at birth
Hepatitis B	Blood	Common (risk increased with phase of disease and viral load) e.g. HBsAg+ HBeAg+ 95% HBsAg+ HBeAg– 2 to 15%	• Rarely presents with ALF during pregnancy	Around delivery Small proportion trans-placentally	*Maternal:* • In selected cases, risk of vertical transmission can be reduced with antiviral therapy (e.g. tenofovir) in 3rd trimester • Salvage liver transplantation *Neonatal:* • Hepatitis B immunoglobulin • Passive immunisation within 24 h of birth (highly effective)
Hepatitis C	Blood	Uncommon (rate ~5% but dependent on viral load and presence of co-infection with human immunodeficiency virus)	• Increased risk of developing early-onset intrahepatic cholestasis of pregnancy[10] • Not particularly associated with adverse pregnancy outcomes	3rd trimester	*Maternal & Neonatal:* • None, but pilot studies looking into safety of direct-acting antiviral therapies during pregnancy • Interferon and ribavirin not recommended during pregnancy
Hepatitis D	Blood	Uncommon	• Requires presence of hepatitis B virus for replication	As per hepatitis B virus	• As per hepatitis B virus
Hepatitis E	Faecal/oral	Common (up to 50%)	• Usually a mild self-limiting infection • More common in pregnant women (? immune alterations) • Increased incidence of hepatic encephalopathy and ALF (70%) with a mortality rate of up to 20% (in developing countries), particularly if acquired late in pregnancy[11] • Associated high rate of obstetric complications:	3rd trimester	*Maternal:* • Ribavirin not recommended during pregnancy • Salvage liver transplantation

			- premature rupture of membranes - intrauterine growth restriction - premature delivery - perinatal mortality • High viral load associated with poor prognosis		
Herpes simplex	Oral to oral contact (type 1) Sexually transmitted (type 2)	Dependent on primary or recurrent infection: up to 65% if primary infection	• Rare, accounts for <1% of acute viral hepatitis in pregnant women • Immunosuppression is a risk factor • May cause fulminant hepatitis in pregnant women with associated high mortality • Typical presentation with prodromal illness: fever, respiratory or gastrointestinal symptoms • Oral or genital lesions absent in 50% • Jaundice uncommon • Development of high aminotransaminases with coagulopathy • Liver biopsy: extensive/focal haemorrhagic necrosis and intranuclear inclusion bodies	Around delivery	*Maternal:* • Aciclovir therapy (7–10 days) • Salvage liver transplantation may also be required *Neonatal:* • Caesarean section if active genital lesions
Cytomegalovirus	Close non-sexual contact, sexual exposure, transfusion, transplantation	Dependent on primary or recurrent infection: up to 45% if primary infection, <5% if recurrent infection	• Pregnancy does not affect clinical severity • Can cause hearing loss and neurodevelopmental disorders in foetus	Acquisition of foetal infection increases with advancing gestational age	*Maternal & Neonatal:* • No proven treatments for effective prevention of foetal disease or risk: - Valganciclovir - Cytomegalovirus hyperimmunoglobulin therapy (conflicting data)
Epstein-Barr	Salivary secretions	Rare	• Little evidence of teratogenic risk to foetus in women who have developed infection during pregnancy	Not well defined	*Maternal & Neonatal:* • No proven treatments for effective prevention of foetal disease